

## 1 I CLAIM:

- 1 1. A method of representing how much a road curves comprising:  
2 selecting two points along the road; and  
3 comparing an approximation of a distance along the road between the two points  
4 to a straight-line distance between the two points;  
5 whereby a result of said comparing is an indication of how much the road curves  
6 between the two points.  
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- 8 2. The method of Claim 1 further comprising:  
9 using said indication of how much the road curves to adjust a speed of a vehicle.  
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- 11 3. The method of Claim 1 further comprising:  
12 storing said indication of how much the road curves in a geographic database.  
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- 14 4. The method of Claim 1 wherein said step of comparing is performed using  
15 shape point data that represent geographic coordinates at locations along the roads.  
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- 17 5. The method of Claim 1 wherein said step of comparing is performed by an  
18 application in a vehicle.  
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- 20 6. A method of representing road geometry comprising:  
21 at selected locations along a road, determining a bowing coefficient, wherein the  
22 bowing coefficient at each of said selected locations corresponds to a comparison  
23 between an approximation of a distance along the road between two points on the road on  
24 either side of the selected location and a straight-line distance between the two points;  
25 and  
26 using the bowing coefficient as an indication of curvature of said road between  
27 said two points.  
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29           7.     The method of Claim 6 further comprising:

30           storing data indicating said bowing coefficient in a geographic database that  
31 represents said road.

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33           8.     A method of operating a vehicle along roads comprising:

34           with a software application in said vehicle, accessing a database containing data  
35 that represent said roads;

36           determining a location of said vehicle with respect to the roads as represented by  
37 said database; and

38           using data that indicate a bowing coefficient at each of a plurality of locations  
39 along said roads to adjust operation of said vehicle.

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41           9.     The method of Claim 8 wherein a speed at which said vehicle is moving is  
42 reduced as said vehicle approaches a portion of said roads at which said bowing  
43 coefficient is relatively higher.

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45           10.    The method of Claim 8 wherein a speed at which said vehicle is moving is  
46 increased as said vehicle approaches a portion of said roads at which said bowing  
47 coefficient is relatively lower.

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49           11.    A method of forming a geographic database comprising:

50           comparing an approximation of a distance along a road segment between two  
51 points to a straight-line distance between said two points; and

52           storing in said geographic database a result of said comparing as an indication of  
53 curvature of said road segment between said two points.

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55           12.    A geographic database formed according to the process of Claim 11.

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57           13.    A method of operating a vehicle along roads comprising:

58           relating a position of said vehicle on a road to a data representation of the road  
59 contained in a geographic database,

60 wherein the data representation of the road includes an indication of curvature at  
61 locations along the road, and

62 wherein the indication of curvature includes a comparison between an arc length  
63 between points along the road and a chord length between the points; and

64 adjusting operation of the vehicle based on the indication of curvature  
65 corresponding to said position of said vehicle.

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67 14. A method of operating a vehicle along roads comprising:  
68 with a software application in said vehicle, computing a relationship between a  
69 distance between two points along a road and a straight-line distance between said two  
70 points;

71 determining a location of said vehicle with respect to said road; and  
72 adjusting operation of said vehicle using said computed relationship.

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74 15. The method of Claim 14 wherein said computing step is performed using  
75 data contained in a geographic database located in said vehicle.

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77 16. A method of operation for an application in a vehicle comprising:  
78 accessing a geographic database that contains data that represent roads upon  
79 which the vehicle is traveling;

80 determining a position of said vehicle with respect to said data that represent  
81 roads upon which the vehicle is traveling; and

82 using data that represent bowing coefficients at locations along said road to adjust  
83 operation of said vehicle.

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